

What in the Zooniverse!

Science literacy programming across libraries using citizen science

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Welcome to the Zooniverse!

<http://go.uncg.edu/snapshot>



Snapshot Grumeti ✓

ABOUT

CLASSIFY



6/11/2017 7:21 AM ID:1114

Cuddeback

TASK

TUTORIAL

Like

Pattern

Color

Horns

Tail



6/22/2017 2:49 PM ID:1006

Cuddeback

What is citizen science?

Scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions (Oxford English Dictionary).

Public participation in scientific research



A very brief History of Citizen Science

Lighthouse keepers
collect data about
bird strikes for
scientists

1880

National Audubon
Society starts
annual Christmas
Bird Count

1900

Public Participation
in Ornithology
(Cornell Lab)

1992

National Weather
Service Cooperative
Observer Program
begins

NSF's Public
Understanding of
Science Program

1958

Bonney, R., et al. 2009. Public Participation in Scientific Research: Defining the Field and Assessing Its Potential for Informal Science Education. A CAISE Inquiry Group Report. Washington, D.C.: Center for Advancement of Informal Science Education (CAISE).

Citizen Science Contributions

- Scientific Research
- Education (Science Literacy)
- Community Engagement



Image used with permission from The North Carolina Arboretum
Researcher image: Pixabay CC0 license

Citizen Science Contributions

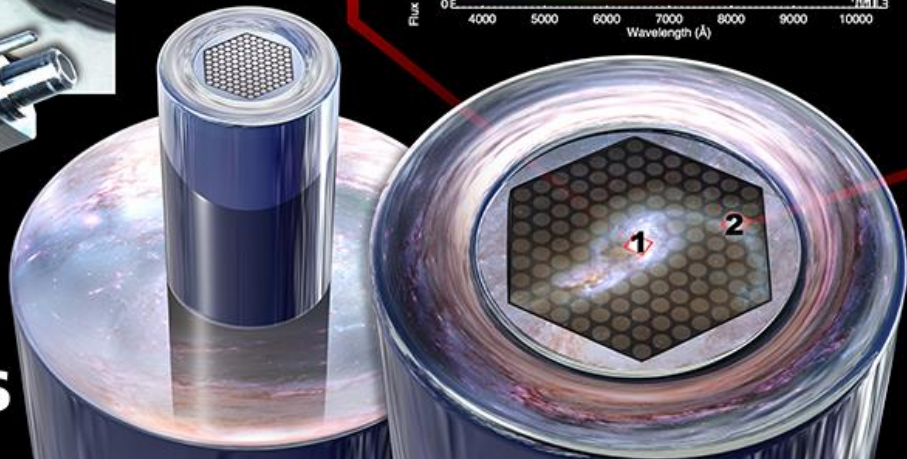
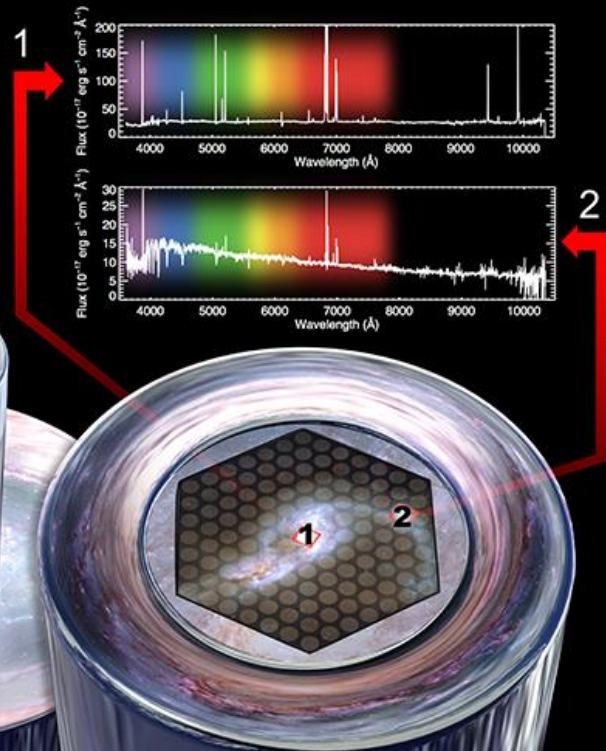
- Scientific Research



Image by [Gerd Altmann](#) from [Pixabay](#)

Sloan Digital Sky Survey

SDSS-IV Dissects 10,000 Galaxies in Nearby Universe

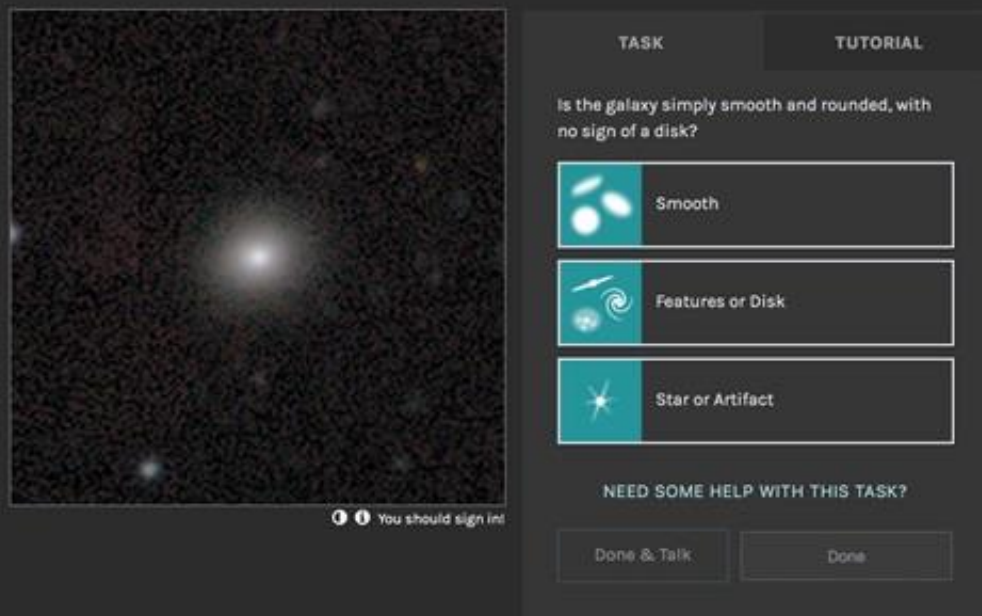


- Dark Energy Survey
 - 2.5 TB of data per night
 - Produced 1 petabyte (1,000 TB) of data
- Large Synoptic Survey Telescope will begin operations in 2022
 - Will collect 15-30 TB of data every night



2007 – Oxford graduate student
Spent 1 month classifying
galaxies for 12 hours/day =
50,000

Launched Galaxy Zoo
70,000 classifications/hour
the first days
50 million the first year



Images CC-BY Sloan Digital Sky Survey
Klesman, A. (2018, Sept 26). Zooniverse: A
citizen science success story. Astronomy.

Citizen Science Contributions

- Education (Science Literacy)



“The public’s limited knowledge in science, technology, engineering, and math (STEM) is a problem for scientific progress.”



Creates a gap between the scientific consensus and public belief

Projects are excellent for developing science-related skills:

- Identifying organisms
- Using measurement instruments
- Collecting field data
- Following protocols
- Process of research
- How scientific questions are asked and answered

Citizen Science Contributions

- Community Engagement

Community Health Effects of Industrial Hog Operations (CHEIHO)

- Gained knowledge of community structure and environmental regulation.
- Learned that belonging to an organization allowed them to communicate more effectively with forest managers than if they worked alone.
- Gained knowledge of community dynamics and environmental regulation

Behavior change as a result of participation

To avoid dependency which had developed previously, I avoid feeding them as often as I did.

I am very mindful of feeding them the correct foods

How they look after and feed the young as a community, not just parents.



NORTH CAROLINA Museum of Natural Sciences

Neighborhood Box Turtle Watch

Carolina Herp Atlas [My Herps](#) [Data](#) [Photos](#) [About Us](#) [Log off](#) [New Record](#)

Record #39581

Species:
Terrapene carolina (Eastern Box Turtle)

Observation Date:
2019-06-03 07:00:00


Remarks:
Hiding in the grass. Had been found by a dog. Was closed in its shell.

Location Comments:
Davidson County, NC. Off of Jennifer Lane.


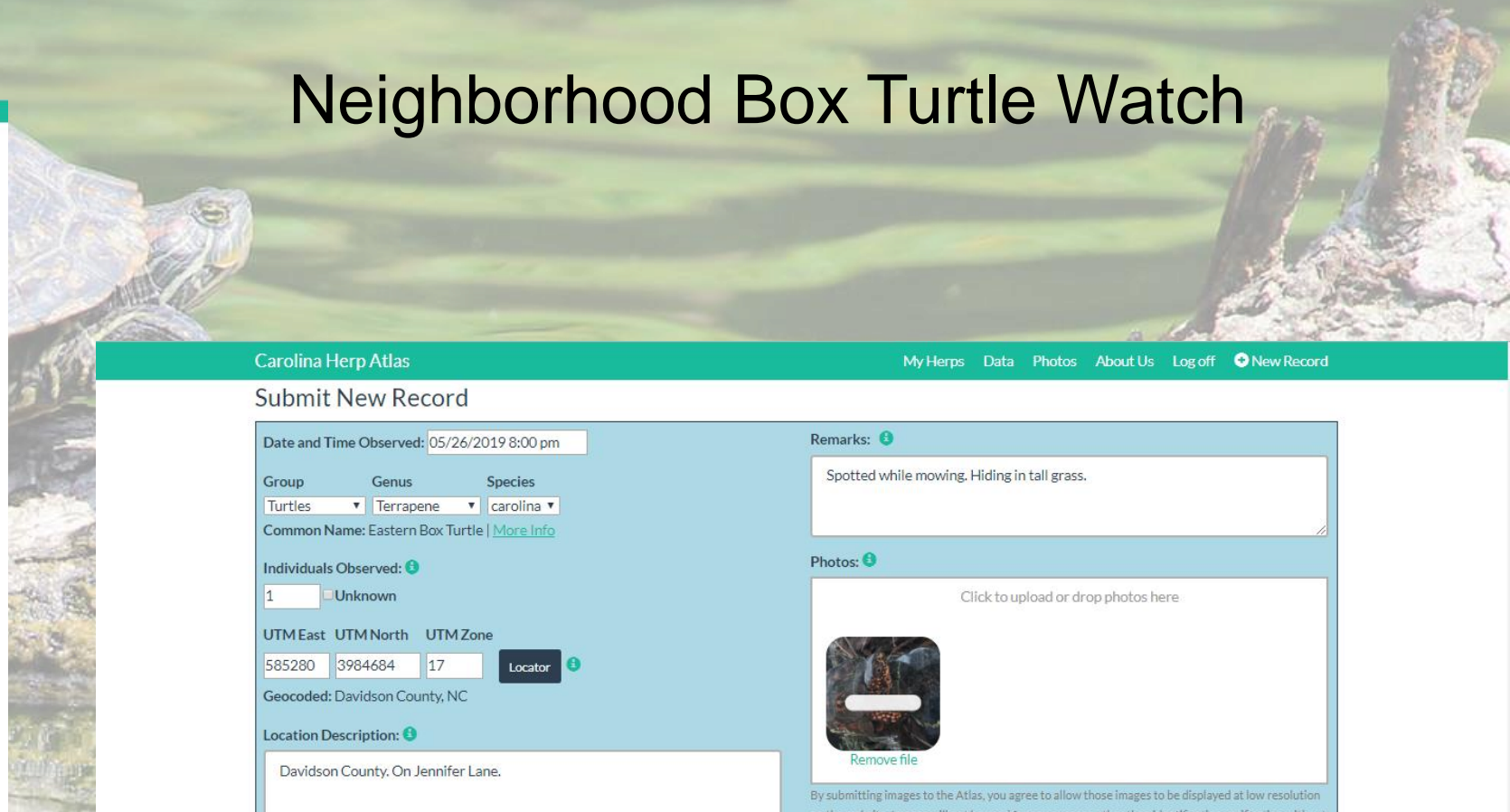
Coordinates:
Easting: 585280 | Northing: 3984684 | Zone: 17
Latitude: 36.00289690000001 | Longitude: -80.05376519999999

State (County):
NC (Davidson)

Location Map:



Photos:

Carolina Herp Atlas [My Herps](#) [Data](#) [Photos](#) [About Us](#) [Log off](#) [New Record](#)

Submit New Record

Date and Time Observed:

Group: Genus: Species:

Common Name: Eastern Box Turtle [More Info](#)

Individuals Observed: Unknown


UTM East: UTM North: UTM Zone: [Locator](#)

Geocoded: Davidson County, NC

Location Description:

Remarks:

Photos:



By submitting images to the Atlas, you agree to allow those images to be displayed at low resolution on the website. Images will not be used for any purpose other than identification verification without contacting the user for permission first.

[Submit Record](#)



Links
[Herps of North Carolina](#)
[Herps of South Carolina](#)

Created and Operated By
 **DAVIDSON**

Supported By
[North Carolina Wildlife Resources Commission](#)
[South Carolina Department of Natural Resources](#)



The NORTH CAROLINA ARBORETUM





NORTH CAROLINA'S CANDID CRITTERS

HOW IT WORKS

1



Sign up at
NCCandidCritters.org
to reserve a space.

2



Receive an
official invitation
to participate.

3



Complete an online
training course.

4



Borrow a camera trap (or
buy one of your own — limited to
certain brands).

5



Pick a site on public land or your
own property and strap your
camera to a tree.

6



In three weeks,
retrieve the camera.

7



Identify the animals
in your photos and upload
the images to us. (Don't worry,
we'll give you software and
confirm your identifications).

8



Repeat as many times as
you would like and return
the borrowed camera when
you are finished.

ILLUSTRATION BY JENNY



Why libraries?

Informal Educators

Prime position to provide:

education

opportunities

Since communities are unique, no single template applies to all.

Implementing Projects – K-12

LESSON 4: EXOPLANET DETECTION

53

In this lesson, students will first engage in an activity that offers an opportunity to use various methods of observation to identify an object without being able to directly observe it with their eyes. Next, students will be asked to research and present to the class one of the direct or indirect methods that scientists use to detect planets around distant stars. Detection methods covered include transit, Doppler, and direct imaging.

Supplementary Materials

- Stellar System Images 60
- Star Signage 61
- Detection Methods sheets 62
- Evaluate Other Systems homework 65

LESSON 6: USING PLANET HUNTERS

75

This lesson acquaints students with the Planet Hunters (www.planethunters.org) citizen science project by researching its goals, learning about the project's science, and participating in the search for exoplanets. Students will watch a video tutorial that explains how the Planet Hunters website works, engage in analyzing light curves and look for possible transits that might indicate the presence of exoplanets.

Supplementary Materials

- Planet Hunters Star I.D. Chart 80



Lessons for Grades K-5



Aligned to the Standard Course of Study



Made for Teachers by Teachers

Implementing Projects - Public

City Nature Challenge

- four-day event taking photos of plants and animals found in their communities
- Western North Carolina vs. Charlotte metro area vs. Triangle



Ready, Set, Snap: WNC to Compete in the 2019 City Nature Challenge

POSTED APRIL 22, 2019 BY [WHITNEY SMITH IN COMMUNITY, NATURE](#)

Calling all nature (smart phone) lovers! Do you love Western North Carolina and all of its natural beauty? Do you find yourself taking photos of plants or animals that you encounter on your hikes? Do you love to WIN competitions while also supporting scientific research? Then join us for the 2019 City Nature Challenge!

Implementing Projects - Academic

Incorporate an authentic research experience into laboratory courses.

Help researchers set up projects to process data.



Image by Nikolay Georgiev from Pixabay

Resources

Platforms

- [Citizenscience.gov](https://www.citizenscience.gov)
- [Zooniverse.org](https://www.zooniverse.org)
- [inaturalist.org](https://www.inaturalist.org)

Local Projects

- Box Turtle Watch
 - go.uncg.edu/boxturtle
- Candid Critters
 - nccandidcritters.org
- EcoExplore
 - ecoexplore.net